Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A method for converting chemical energy into a useful form, comprising:

using reactants to create excited species;

coupling the excited species with electrons by placing the excited species near a conducting surface for electron-jump effect to occur;

creating excited carriers from the coupling of the excited species;

collecting the excited carriers; and

converting an energy of the excited carriers into a useful form of energy.

2. (currently amended) The method ~~for generating energy as claimed in~~ of claim 1, wherein the collecting includes collecting the excited carriers using a semiconductor.

3. (currently amended) The method ~~for generating energy as claimed in~~ of claim 1, wherein the converting includes converting the excited carriers into chemical potential across a diode junction.

4. (currently amended) The method ~~for generating energy as claimed in~~ of claim 1, wherein the converting excited carriers includes energizing with the excited

carriers to energize a semiconductor device to emit electromagnetic radiation.

5. (currently amended) The method ~~for generating energy as claimed in~~ of claim 4, wherein the semiconductor device is a light emitting diode.

6. (currently amended) The method ~~for generating energy as claimed in~~ of claim 4, wherein the semiconductor device is a quantum well structure.

7. (currently amended) The method ~~for generating energy as claimed in~~ of claim 1, wherein the using reactants includes reacting fuel with oxidizer.

8. (currently amended) The method ~~for generating energy as claimed in~~ of claim 1, wherein the using reactants includes allowing reactants to enter and exhaust products to leave a vicinity of the conducting surface where reactions that create the excited species occur.

9-26. (canceled)

27. (currently amended) The method ~~for generating energy as claimed in~~ of claim 1, wherein the converting includes converting flux of the excited carriers into an inverted population of carriers in ~~the~~ a semiconductor.

28. (currently amended) The method ~~for generating energy as claimed in~~ of claim 27, further including:

extracting energy stored in the inverted population of carriers as electromagnetic radiation.

29. (currently amended) The method ~~for generating energy as claimed in~~ of claim 28, wherein the method further includes causing stimulated emission to extract the electromagnetic radiation.

30. (new) The method of claim 1, wherein the collecting includes collecting the excited carriers using a semiconductor diode.

31. (new) The method of claim 1, wherein the collecting includes collecting the excited carriers using a Schottky junction diode.

32. (new) The method of claim 1, wherein the collecting includes collecting the excited carriers using a bipolar semiconductor.

33. (new) The method of claim 1, wherein the collecting includes collecting the excited carriers using an n-type semiconductor.

34. (new) The method of claim 1, wherein the collecting includes collecting the excited carriers using a p-type semiconductor diode.

35. (new) The method of claim 1, wherein the collecting includes collecting the excited carriers using a p-n junction diode.

36. (new) The method of claim 1, further including placing a first electrode in contact with the conducting surface.

37. (new) A method for generating a useful form of energy, comprising:

using one or more reactants on one or more catalyst surfaces to create excited species;

coupling the excited species with electrons by placing the excited species near a conducting surface for electron-jump effect to occur;

creating excited carriers from the coupling of the excited species;

collecting the excited carriers; and

converting an energy of the excited carriers into a useful form of energy.

38. (new) The method of claim 37, wherein the useful form of energy includes useful electrical power.

39. (new) The method of claim 1, wherein the useful form of energy includes useful electrical power.

40. (new) The method of claim 1, wherein the excited species include highly vibrationally excited molecules.

41. (new) The method of claim 37, wherein the excited species include highly vibrationally excited molecules.

42. (new) The method of claim 1, wherein the reactants include a fuel.

43. (new) The method of claim 37, wherein the reactants include a fuel.

44. (new) The method of claim 1, wherein the reactants include an oxidizer.

45. (new) The method of claim 37, wherein the reactants include an oxidizer.

46. (new) The method of claim 37, wherein the one or more catalyst surfaces include one or more step formations.